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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314			LAM, WAI YIP	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/927,513	Applicant(s) SONG, CHUL-HO	
	Examiner Wai Lam	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02282002</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Republic of Korea on 8/14/2000. It is noted, however, that applicant has not filed a certified copy of the priority documents as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 1, the applicant claims a second filtering means, connected to the transmission means, for filtering the modulated RF signal transmitted through the transmission means to thereby pass the filtered modulated RF signal from the first filtering means. In this limitation, it is unclear the second filtering means is filtering which modulated RF signal transmitted through the transmission means. Is the second filtering means filtering the filtered modulated RF signal from the first cable modem or the modulated RF signal from the second cable modem or both? Therefore, the applicant fails to distinctly point out which modulated RF signal the present limitation is referring to. However, in light of the

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claim and the disclosure of the present application, it will be assumed that the modulated RF signal is the filtered modulated RF signal (filtered by the first filtering means).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 1, 2, 3, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of U.S. Patent No. 5,581,555 (Dubberly et al.)

As to claim 1, the admitted prior art teaches a system for providing a multi-Internet connection in a cable network system (Figure 1, page 5, lines 15 – 26, page 6, lines 1 - 16).

The admitted prior art also teaches a first and a second cable modem for modulating digital data signal from subscribers to radio frequency signal (Page 5, lines 7 – 8).

The admitted prior art fails to teach a first filtering means, connected to the first cable modem, for selectively filtering the modulated RF signal from the first CM.

However, Dubberly et al. teaches a first filtering means (Unit 430 in Figure 12 of Dubberly et al.), connected to the first CM (Everything left of Unit 425 in Figure 12 of Dubberly et al.), for selectively filtering the modulated RF signal from the first CM (Column 25, lines 44 - 46). Everything left of Unit 425 in Figure 12 of Dubberly et al. is considered a cable modem because it is an interface device connected to a coaxial cable network that modulates and demodulates signals.

The applicant argues that claim 1 requires a first filtering means connected to the first cable modem, for selectively filtering the modulated RF signal from the first CM. Dubberly et al. indeed shows the diplex filter connected to a splitter that is between the diplex filter and a coaxial cable drop. However, the examiner's interpretation is that the first filtering means (diplex filter 430) connected to a first cable modem (everything left of unit 425 in Figure 12 is a cable modem according to the examiner's interpretation), for selectively filtering the modulated RF signal from the first cable modem.

It is note that the applicant also states that the diplex filter 430 does not split the reverse band from about 5 – 30 MHz in contrast with the present invention in order to remove an interference with each subscriber. This is a true statement, however, claim 1 does not state that the first filtering means (taken to be the diplex filter of Dubberly et al. by the examiner) split the reverse band from about 5 – 30 MHz. The claim limitation in claim 1 states that the first filtering means filters the modulated RF signal. Diplex filter 430 of Dubberly et al. filters a modulated RF signal as describe below.

According to "The authoritative dictionary of IEEE standards terms, 7th Edition", a modem is defined as a modulator/demodulator device that converts serial binary digital data to and from the signal form appropriate for the respective communication channel (Page 701). Furthermore, the "Microsoft computer dictionary, 5th edition" defines a cable modem as a modem that sends and receives data through a coaxial cable television network instead of telephone lines (Page 80).

Dubberly et al. teaches in Figure 12 that everything left of Unit 425 comprises a reverse modulator and a forward demodulator, which is connected to a coax cable drop. Dubberly et al. also teaches that the reverse channel modulator 415 is operative to receive serial data input from the digital bus in a CIU and modulate the incoming data into a selected channel in QPSK for coupling to the reverse channel frequency spectrum that is in a selected 108kHz subband (Column 26, lines 26 – 36). Further, Dubberly et al. teaches that the diplex filter 430 (first filtering means) is further operative to pass signals in the selected forward 15.840MHz spectrum for downstream signals to the forward channel demodulator 420 so that the directory channel, signaling channel, and downstream telephony DS0's may be demodulated and coupled to the appropriate line cards. Therefore, everything left of Unit 425 in Figure 12 (including the reverse modulator 415 and the forward demodulator 430) is as a modulator/demodulator device that converts serial binary digital data to and from the signal form appropriate for the respective communication channel that sends

and receives data through a coaxial cable television network instead of telephone lines, or a cable modem. Dubberly et al. also teaches that the first filtering means (diplex 430 in Figure 12) is connected to the first cable modem (everything left of unit 425 as discussed above) as shown in Figure 12, for selectively filtering the modulated RF signal (modulated QPSK signal). Referring to Figure 13, the internal structure of the reverse modulator, the output of the QPSK signal varies between 5.12 MHz and 29.824 MHz (Column 27, lines 15 – 17). According to the “Microsoft computer dictionary, 5th edition”, a radio frequency is defined as a portion of the electromagnetic spectrum with frequencies between 3 kilohertz and 300 gigahertz (Page 436). Therefore, the QPSK signal outputted from the reverse modulator, (which is a 108KHz subband signal carried in the range from 5.12 MHz to 29.824 MHz), which is a portion of the electromagnetic spectrum with frequencies between 3 kilohertz and 300 gigahertz, is a modulated RF signal, regardless of the fact that the signal is a telephony signal. The diplex 430 also selectively filters (passes) a signal in the 5 – 30 MHz range. The above explanation meets all the claim limitations. Therefore, in contrary to the applicant’s interpretation, Dubberly et al. shows that the diplex filter (first filtering means) is connected to a first cable modem (everything left of unit 425 in Figure 12), wherein the cable drop is connected to the cable modem via the first filtering means, for selectively filtering the modulated (modulated from the reverse modulator 415) RF signal from the first cable modem (everything left of unit 425 in Figure 12).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art, to modify the admitted prior art system, using the first filtering means and the cable modem of Dubberly et al., for the purpose allowing the separation of the CATV spectrum into forward and reverse paths based on frequency (Column 13, lines 45 – 47), thereby eliminating the need and the cost of implementing two physical medium for bidirectional communications.

The admitted prior art also teaches a transmission means for transmitting the modulated RF signal from the second cable modem (Unit 50 in Figure 1 of present application, (Page 6, lines 1 – 5).

The admitted prior art also fails to teach a transmission means for transmitting the filtered modulated RF signal from the first filtering means and the modulated RF signal.

However, by modifying the cable modem of the admitted prior art system and by adding the first filtering means as suggested by Dubberly et al. (as discussed above), the transmission means (HFC network in Figure 1) would be transmitting the filtered modulated RF signal (modulated by the reverse modulator 415 and filtered by the diplex filter 430 as discussed above).

The admitted prior art also fails to teach a second filtering means, connected to the transmission means, for filtering the filtered modulated RF signal (filtered by the first filtering means) transmitted through the transmission means to thereby pass the filtered modulated RF signal from the first filtering means.

However, Dubberly et al. teaches a second filtering means (diplex filter 325 in Figure 11), connected to the transmission means (HFC network in Figure 1), for filtering the filtered modulated RF signal transmitted (filtered by diplex 430 in Figure 12) through the transmission means to thereby pass the filtered modulated RF signal from the first filtering means (diplex 325 in Figure 11). Dubberly et al. teaches that the second filtering means (diplex 523 in Figure 12) is connected to the transmission means (HFC network in Figure 1, Column 21, lines 46 – 51). Dubberly et al. further teaches that the reverse band frequencies from about 5 – 30 MHz are allocated for signals returning from the subscriber to the headend (Column 14, lines 18 – 20). Therefore, the second filtering means (diplex filter 325 in Figure 11) connected to the transmission means at the headend filters the filtered RF signal transferred from the diplex 430 of Figure 12, wherein the filtered RF signal in the reverse band from diplex 430 in Figure 12 is passed through the diplex 325 in Figure 11. Therefore, the second filtering means is connected to the transmission means for filtering the filtered RF modulated signal, thereby passing the filtered modulated RF signal from the first filtering means. This reads on the claimed limitation

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art, to modify the admitted prior art system, using the second filtering means of Dubberly et al., for the purpose allowing the separation of the CATV spectrum into forward and reverse paths based on

frequency (Column 13, lines 45 – 47), thereby eliminating the need and the cost of implementing two physical medium for bidirectional communications.

The admitted prior art also fails to teach a first cable modem termination system (CMTS), for demodulating the filtered modulated RF signal filtered by the second filtering means back to the digital data signal, scanning the digital data signal and identifying a registered subscriber to thereby connect the subscriber to a corresponding host server.

However, Dubberly et al. teaches a first CMTS (everything left of unit 322 in Figure 12), for demodulating the filtered modulated RF signal filtered by the second filtering means (diplex 325 in Figure 12) back to the digital data signal (Column 23, lines 28 – 40), scanning the digital data signal and identifying a registered subscriber to thereby connect the subscriber to a corresponding host server.

According to “Newton’s telecom dictionary, 21st update and expanded edition”, a headend CMTS communicates signals through the upstream and downstream channels with cable modems located in subscriber homes (Page 145). Therefore, Dubberly teaches a CMTS (everything left of 322 in Figure 12) because signals are communicated between the Headend Interface Unit 301 (Figure 11) and Customer Interface Unit 400 (Figure 12) Column 12, 38 – 47). Furthermore, the CMTS of Dubberly et al. (everything left of Unit 322 in Figure 11) comprises a demodulator that demodulates the filtered RF signal filtered by the second filter means (diplex 325 in Figure 11) (Column 23, lines 28 – 40).

Note that the mutli-way splitter as described in the disclosure of Dubberly et al. in Figure 11 receives its signals from duplex 325. Therefore, the reverse demodulator of the CMTS is demodulating the filtered RF signal from the second filtering means. The admitted prior art already teaches scanning the digital data signal and identifying a registered subscriber to thereby connect the subscriber to a corresponding host server. Therefore, by modify the admitted prior art with the second filtering means and the CMTS of Dubberly et al, the modified device is operable to perform the functions of the present claim limitations. Note that the everything left of unit 322 in Figure 11 is taken to be the first CMTS, therefore, the second filtering means (duplex 325 in Figure 11) is connected to the CMTS via unit 322. The second filtering means is also connected to the transmission means (broadband communications network).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art, to modify the admitted prior art system, using the second filtering means and the CMTS of Dubberly et al., for the purpose of sharing and splitting the limited upstream bandwidth in order to maximize the number of subscribers that can utilize the system without contention for the shared resource (Column 5, lines 49 – 64).

The admitted prior art also teaches a second CMTS (Unit 200 in Figure 1 of present application) for demodulating the transmitted (second) modulated RF signal back to the digital data signal and scanning the digital data signal (Page 4,

line 12, Page 5, lines 8 – 10) and identifying a registered subscriber to thereby connect the subscriber to a corresponding host's server (Page 6, lines 3 – 14).

As to claim 2, Dubberly et al. teaches the limitations of claim 1 as discussed above. Dubberly et al. also teaches the first (Unit 430 in Figure 12) and the second filtering means (Unit 325 in Figure 11) are high pass filters, respectively. Units 430 and 325 are diplex filters that contains high pass filters, therefore, they read on to the claimed filtering means that are high pass filters.

As to claim 3, Dubberly et al. teaches the limitations of claim 1 as discussed above. Dubberly et al. also teaches the first (Unit 430 in Figure 12) and the second filtering means (Unit 325 in Figure 11) are band pass filters, respectively. Units 430 and 325 are diplex filters that passes certain bands of frequencies in the frequency spectrum, therefore, they read on to the claimed band pass filters.

As to claim 6, see rejection of claim 1 and note that Dubberly et al. also teaches the transmission means is a hybrid coaxial cable (Column 2, lines 3 – 11, Figure 1).

2. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of U.S. Patent No. 5,581,555 (Dubberly et al.) as applied to claims 1, 2, 3 and 6 above, and further in view of U.S. Patent No. 5,493,261 (Kitoh et al.)

As to claim 4, Dubberly et al. teaches the limitations of claims 1 and 2 as discussed above.

Dubberly et al. fails to teach the first and the second filtering means are 32 MHz high pass filters.

However, Kitoh et al. teaches a high pass filter wherein the frequency characteristics can be easily adjusted (Column 4, lines 33 – 64). This reads on to the claimed first and second filtering means are 32 MHz high pass filters:

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art, to modify the duplex filters of Dubberly et al., using the frequency adjustable high pass filters of Kitoh et al., for the purpose of eliminating mismatching loss due to stray capacitances and allowing the desired filter frequency characteristic to be readily achieved (Column 1, lines 41 – 45, Column 2, lines 40 – 41).

As to claim 5, Dubberly et al. teaches the limitations of claims 1 and 3 as discussed above.

Dubberly et al. fails to teach the first and the second filtering means are 16 - 32 MHz band pass filters.

However, Kitoh et al. teaches a band pass filter wherein the frequency characteristics can be easily adjusted (Column 4, lines 66 – 67, Column 5, lines 1 – 37). This reads on to the claimed first and second filtering means are 16 - 32 MHz band pass filters.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art, to modify the duplex filters of Dubberly et al., using the frequency adjustable band pass filters of Kitoh et al., for the purpose of eliminating mismatching loss due to stray capacitances and allowing the desired filter frequency characteristic to be readily achieved (Column 1, lines 41 – 45, Column 2, lines 40 – 41).

As to claims 4 and 5, in response to the applicant's interpretation, Kitoh does not mention a system splitting a frequency band used in upstream for providing a multi internet connection in a cable network system. However, the applicant does not claim splitting a frequency band used in upstream. Claim 4 and 5 merely states that the first and second filtering means are high pass filters or band pass filters, respectively. Since the admitted prior art reads on the claimed multiple Internet connection and the first and second filtering means are addressed in claim 1, the scope of claim 4 and 5 is merely a high pass or band pass filter that filters at a certain frequency, respectively to claims 4 and 5. Kitoh discloses high pass and band pass filters that can be tune to a specific frequency based the desired characteristics. Therefore, Kitoh discloses high pass and band pass filters that can achieve the claim frequency or frequency range. There is also a reasonable expectation of success for modifying the first and second filtering means with the respective filters because the filters are functionally equivalent in the fact that the filtering means of Dubberly et al. and the filters of

Kitoh filters out a certain signal and in order to pass a signal in a certain frequency or frequency range.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,169,569 (Widmer et al.) teaches a high pass and band pass filter at the cable modem. U.S. Patent No. 6,360,369 (Mahoney) teaches a band pass filter at the CMTS. U.S. Patent No. 3,924,187 (Dormans) teaches two filtering means attached to the head-end and the client terminal, respectively. U.S. Patent No. 6,804,262 (Vogel et al.) teaches a band pass filter in the cable modem.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai Lam whose telephone number is (571) 272-2827. The examiner can normally be reached on Monday - Friday 7:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (571) 272-7353. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Hai Tran', is written over two horizontal lines.

**HAI TRAN
PRIMARY EXAMINER**